DOCUMENT RESUME

ED 151 709 CG 012 328

AUTHOR Kivett, Vira R.
TITLE Discriminators of Loneliness Among the Rural Elderly: Implications for Intervention.
SPONS AGENCY North Carolina State Univ., Raleigh. Agricultural Experiment Station.
PUB DATE 22 Nov 77
NOTE 25p.; Paper presented at the Conference of the Gerontological Society (29th, New York, N.Y., October, 1977)

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS Community Services; *Individual Needs; Interpersonal Relationship; Marital Status; Mental Health; *Older Adults; Physical Health; *Psychological Needs; Research Projects; *Rural Environment; *Social Isolation
IDENTIFIERS *Loneliness

ABSTRACT

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Discriminators of Loneliness Among the Rural Elderly: Implications for Intervention[1]

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Vira R. Kivett, Ph.D.[2]

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A Paper Presented at the 30th Annual Scientific Meeting
of the Gerontological Society, November 22, 1977
San Francisco, California

The purpose of this study was to determine the most important physical and social discriminators of loneliness among 418 rural adults aged 65 to 99 years. A multiple stepwise discriminant analysis which incorporated 18 classifying variables was used to determine the best classifiers of adults into three levels of loneliness. Two significant functions of loneliness were derived, the first and the most important of which maximized distances between the quite often and the almost never lonely. The profile of the "quite often" lonely was the female who had lost a spouse through death and had incurred important physical losses such as health and eyesight. These persons were also distinguishable through inadequate transportation and little social activity except for frequent telephoning. The second function characterized the "occasionally" lonely who were generally "advantaged" in terms of health and transportation but were limited by having no mate. Implications for intervention are discussed.

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[1]This study (AES13240) was supported by the Cooperative State Research Service, United States Department of Agriculture, Washington, D. C., 20250; The North Carolina Agricultural Experiment Station, Raleigh, N. C., 27607; and the School of Home Economics, The University of North Carolina at Greensboro, 27412.

[2]Department of Child Development and Family Relations, The School of Home Economics, University of North Carolina at Greensboro, 27412; and the North Carolina Agricultural Experiment Station, Raleigh, 27607.

CG012328

Loneliness as a "serious problem" affects approximately 12% of the population 65 years or older, or approximately 2.6 million older adults (Harris, 1975). The results of a national survey by Harris in 1975 showed that loneliness ranked fourth among 12 areas as a "serious problem" for persons 65 years or older. It was preceded only by the fear of crime, poor health, and inadequate income. Little attention has been given to the concept of loneliness and especially as it relates to the elderly. Not only are the frequency and intensity of loneliness in our society underestimated, but the lonely themselves tend to be disparaged (Weiss, 1973). Butler (1975) pointed out that not only has the extent of loneliness among the elderly not received sufficient recognition, but its disruptive effects upon the physical and mental health of older adults, particularly the isolated, have been grossly underestimated.

According to Fromm-Reichman (1968) there probably is no human being who is not threatened by the loss of interpersonal intimacy. Furthermore, individuals in the face of severe loneliness will exhibit characteristics of extreme hopelessness and futility. Sullivan (1953), in his theory of needs, assigned the avoidance of loneliness to the same group as the need for food, sleep, and sexual fulfillment. He stated that individuals will resort to anxiety-arousing experiences in an effort to escape from loneliness. Bowlby (1973) stressed the importance of "affectional bonding" through his observations that at each phase of life individuals tend to make strong bonds to a few special and particular persons. There is relative security until these bonds are broken, either voluntarily or through death, and anxiety and distress set in.

Several definitions of loneliness have been advanced. Lopata (1969) defined loneliness as a desire for a form or level of interaction different from the one presently experienced that can relate to either a number of people, to forms of their behavior, or to expressed sentiments. Weiss (1973) chose to dichotomize loneliness into emotional isolation which results from the loss or lack of an intimate tie (usually with spouse, parent, child, etc.) and social isolation which reflects the lack of a network of meaningful involvements with peers of some sort. Sullivan (1953) described loneliness as "the exceedingly unpleasant and driving experience connected with an inadequate discharge of the need for human intimacy, for interpersonal intimacy."

A common dimension in most definitions of loneliness seems to be the general wish or longing for a specific form of relationship, not just the desire for company. This property is frequently observed among some older people, who, despite substantial contacts with others, still express feelings of loneliness. In contrast, others who have only minimal contacts may not perceive themselves as lonely or isolated at all (Heitsley & Powers, 1975).

There seems to be no single cause of loneliness in old age and reactions to loneliness involving situations vary greatly among individuals (Shanas, Townsend, Wedderburn, Friis, Milhøj, Stehouwer, 1968; Townsend, 1973). It is generally acknowledged, however, that extreme loneliness is associated with marked changes in social circumstances (Townsend, 1973). As a result, the elderly are especially vulnerable to feelings of loneliness and the problems frequently found associated with it. This point was well taken by Butler (1975) who pointed out that loneliness may be a frequent reaction

to the major crises of old age such as: widowhood, late-life marital and sexual problems, retirement, sensory loss, aging, disease, pain, institutionalization, and dying.

A number of correlates of loneliness have been identified among the elderly and they include: health and sex (Shanas et al, 1968; Weiss, 1973); marital status (Atchley, 1977; Lopata, 1973; Shanas et al, 1968; Weiss, 1973); vision (Weiss, 1973); housing satisfaction (Woodward, Gingles, & Woodward, 1974), and residence (Bild & Havighurst, 1976). Little is known, however, about the relative ability of these and other variables to distinguish between levels of loneliness among the older population. In order that successful systems of intervention can be developed and implemented, it is imperative that "high risk" groups be identified. This need is especially important in geographic locations that do not afford easy access to networks of interaction and service delivery such as in rural areas. Therefore, it was the purpose of the present study to determine among several physical and social variables the most important discriminators of loneliness among the rural elderly.

METHODS

Subjects

The sample consisted of 418 adults aged 65 to 99 years of age who lived in a rural county in North Carolina. Adjacent census tracts within the county were clustered and, based upon a sampling ratio, a random selection was made of the areas to be canvassed. Everyone 65 years or older residing within a selected area was administered a comprehensive questionnaire. A trained interviewer recorded the subject's responses. Information on the questionnaire was relative to the physical, psychological, and social

characteristics of the older adults. The sample design also allowed for a representative number of the group quartered elderly (5%). Surrogate respondents were used for the physically or mentally incapacitated elderly where appropriate. Of the original 418 subjects, 38 or approximately 9% were dropped because surrogate responses were not obtained on certain subjective items or because of incomplete information (adjusted $\underline{N}$ = 380).

Females constituted 56.6% of the sample and males, 43.4%. The mean age for the group was 73.4 years and there was a mean educational level of 6.8 years. Black adults composed 37.2% of the sample and 62.8% of the group was white. Approximately 50% of the adults were married and 39% were widowed. Their average number of children was 3.7. The majority of the sample, approximately 78%, had lived in the same neighborhood for 30 years or more. Older adults usually reported themselves as being retired (82.2%). Approximately 22% lived alone. Adults generally did not have health problems that stood in their way (78.8%) despite the fact that 68.3% indicated that their health was either fair or poor.

Research Design

A multiple stepwise discriminant analysis which incorporated 13 physical and social variables was used to determine the best classifiers of adults into three categories of loneliness (quite often lonely, sometimes, and almost never lonely). The classifying variables included: adequacy of transportation, marital status, educational level, presence of a confidant, organizational activity, frequency of visits with friends and neighbors, frequency of telephone calls, physical mobility, self-rated health, adequacy of hearing, adequacy of eyesight, and sex. Dummy variables were created for the adequacy of income, transportation, and marital status variables which

expanded the total number of classifying variables to 18.

Measures

The dependent variable, feelings of loneliness, was measured by responses to the question, "Do you find yourself feeling lonely quite often, sometimes, or almost never?" This item was coded, 0, 1, and 2, respectively. Adequacy of income was determined through response to the question, "Which of these best describes how far your money goes - you have enough money for everything that you need; you have enough money if you're careful; or you do not have enough money for things that you need?" This item was coded 3, 2, and 1, respectively, with the "do not have enough" category serving as the group against which the other two groups were compared. The transportation variable was obtained through the question, "How often does transportation trouble you - never, sometimes, or often?" Responses were weighted 1 through 3, respectively. The "often a problem" category served as the reference group for comparison. Marital status was composed of five categories, single, married, widowed, divorced, and separated. The married category served as the reference group against which each of the other classifications was compared. Educational level referred to the actual number of years of schooling completed. The presence of a confidant was determined through responses to the question, "Do you have as much contact as you would like with a person that you feel close to, someone that you can trust and confide in?" "Yes", received a code of 2 and, "no", a zero. Organizational activity was determined by the number of times a month older adults got together with other people in a group for some organized activity (three or more times, coded 3; two or three times, coded 2; one, coded 1; or zero, coded 0).

Responses to frequency of visits with friends and neighbors was coded 4 if frequent (at least once a week), 3 if occasional (at least once a month), 2 if seldom, and 1 if never. The frequency of telephone calls to friends, relatives, or others during a week's period was coded 3 if once a day or more, 2 if 2 - 6 times, 1 if once, and 0 if not at all. Extent of physical mobility was determined by which of five levels of mobility an individual indicated, ranging from ability to go anywhere to bedbound, coded 6 through 2, respectively. Self-rated health was measured by the "Cantril ladder" with the bottom rung of the ladder (0) representing the most serious illness and the top of the ladder (9) representing perfect health (Cantril, 1965). Both eyesight and hearing were measured by asking---"How is your eyesight or hearing - excellent, good, fair, or poor, and/or you totally blind or deaf?" Responses were coded 4 through zero, respectively. Males were coded as 1 and females as 2.

FINDINGS

Group membership of the 380 adults according to category of loneliness was: quite often lonely, 59, or 15.5%; sometimes lonely, 159 or 41.8%; and never lonely, 162, or 42.6%. Results in Table 1 show that two significant functions of loneliness were derived from the 18 classifying variables. The first function was the more important of the two in terms of maximizing the distance between the three categories of loneliness. The proportion of variance explained in the discriminant analysis by group membership was greater for the first function than for the second, R_c^2 = .20 and .07, respectively (Table 1).

[Table 1 about here]

As observed in Table 2, the percentage of "grouped" cases correctly classified by the technique was 55.0. This percentage was considerably higher than the 33.3% prior probability or the proportion of subjects who might have been correctly classified by chance alone. Even though the discrimination was statistically significant, considerable overlap among groups can be seen in Table 2. This observation applies, in particular, to the "sometimes" lonely group in which the classification routine was able to identify only 43.4% of these cases as members of the group to which they actually belonged.

[Table 2 about here]

Discriminators of Loneliness

Results from the stepwise discriminant analysis in Table 3 show that 7 of the 18 variables produced a significant degree of separation of older adults into groups of loneliness. The most important variables in terms of their relative discriminating power at the $p < .05$ were adequacy of transportation, frequency of telephoning, self-rated health, widowhood, organizational activity, single adulthood, and adequacy of eyesight (Table 3). The transportation contrast "often" transportation vs. "never" was the single variable showing the highest overall ability to separate into groups of loneliness.

[Table 3 about here]

Functions of Loneliness

The first discriminant function distinguished in the main between the never lonely and the quite often lonely. This distinction appeared to be based upon primary physical and social losses incurred by older adults such

as overall health and spouse. The most important discriminator in function one, relative to the other classifiers, was a marital status contrast, widows vs. married (Table 4). Widowed adults were much more likely than married persons to be frequently lonely. The second best discriminator was self-rated health. Persons who had more negative health ratings were more apt to report frequent loneliness. Other variables of significance but of lesser importance to the physical-social loss function were adequacy of eyesight, transportation, organizational activity, sex, and frequency of telephoning. The profile of the "quite often" lonely that emerged as a result of the discriminating power of the first function was the female who had lost a spouse through death and who had incurred important physical losses such as health and eyesight (Tables 4 & 5). The quite often lonely could also be distinguished by having inadequate transportation and little social activity except for frequent telephoning.

[Tables 4 & 5 about here]

Other than being a somewhat less efficient predictor, function two differed from function one in that it distinguished between the "sometimes" and the "quite often" lonely. Underlying function two were qualities that represented the physically and socially adequate, single female. Discriminating variables in order of their importance were: eyesight, ability to get around, talking on the phone, single vs. married contrast, widowed, vs. married contrast, confidant, organizational activity, sex, and divorced vs. married contrast. Adults who were more likely to say that they were "sometimes" rather than "quite often" lonely were generally females who had no spouse (divorced, widowed, or never married), who had good vision and physical mobility, frequent social activity, and a confidant.

DISCUSSION AND IMPLICATIONS FOR INTERVENTION

Results from the present study show that feelings of loneliness among the elderly are quite complex and confounded by many physical and environmental variables. The data provide evidence, however, that rural older adults generally can be classified as either high or low "risks" for loneliness according to a combination of physical and social losses that they have incurred. The loss of a mate and decreases in vision and self perceived health in combination with problems of transportation and frequent use of the telephone, being female, and low participation in social activities distinguish the "quite frequent" from the "almost never" lonely. Occasional loneliness appears to be most typical of persons for whom health and transportation are not problems but who have no mate (either divorced, widowed, or single). The findings suggest the need for loneliness intervention in five areas: (1) organizational activity, (2) primary relationships, (3) health, (4) transportation, and (5) vision.

Areas of Intervention

Organizational activity and primary relationships. The need for reintegration into the community is frequent among the elderly and especially among widows (Silverman & Cooperband, 1975). The death of a spouse often heralds changes in social role which disrupt former friendship and other relationships. The extent to which the role of friend, kin member or neighbor is affected through the death of a spouse determines the extent to which the widow's sense of self is disheveled. Consequently, the widow's ability to make shifts in life focus or past life experiences to the present and future are crucial to her ability to adapt to the single role. The new role complex of the widowed appears to be based upon the social structure and culture of the society, and especially the immediate social group; the

family segment available for interaction; and the personality and life circumstances of the widowed (Lopata, 1969). The significance of kin in adjustment to widowhood has been questioned. Some data suggest that relatives may reinforce feelings of helplessness and loss of identity while other relationships may help to foster suggessful aging. (Rosen, 1973). Forming relationships outside of one's usual social context, however, has been found to have a poor prognosis for long-term survival (Weiss, 1973). Making new friends and developing new social roles in general are difficult tasks for most older females, because of their earlier socialization to passivity.

Many problems arise for the widowed because they have no clear role definition, and, as a result, they become socially isolated. A key to adaptation appears to be the widow's ability for reintegration into the community via a role model, usually another widow, who can provide perspectives on feelings (Lopata, 1969; Silverman & Cooperband, 1975). This procedure has been found to help widows to find a new definition of self as a single person and to serve as a bridge for reintegration into informal social life. Supplementary relationships are generally found to be more effective if they are initiated or facilitated by kin or other persons close to the older adult. This process of reintegration can, in turn, accommodate the development of a new primary relationship. Supplementary relationships may allay loneliness, but they may be costly (if they involve a counselor or therapist). Furthermore, they have the potential for being only temporary.

Mutual help groups have been found to provide useful role models in "repeopling" older adults. This idea consists of organizations whose membership is limited to individuals with common problems. The "helpers" within the organization serve as role models, offer friendship, and have the

potential for becoming a "primary other" while serving as a bridge to the community (Silverman & Cooperband, 1975). Ultimately, the benefactor becomes a "helper". Such integration into the community is more successful if the older person has some resource to offer as a reciprocal exchange, e.g., counsel, wisdom, experience, etc. (Fischgrund, 1976). The elimination of loneliness through mutual help groups is generally not successful unless there is opportunity for a single intense relationship to develop that makes the same provisions as the lost relationship (Weiss, 1973). Only a few isolated attempts have been made by the social service community to create programs to help widows to compensate for the losses that they have incurred (Hiltz, 1977).

Persons without links to the surrounding community, either through family, friends, social groups, the church, etc., present special risks of loneliness. The reintegration of older adults into the community, as reflected through organizational activity and friendship, has been found to occur with more frequency in communities or settings where there is a high density of residents of similar socioeconomic, marital, and age status (Rosenberg, 1976; Rosow, 1967). The multi-purpose senior center, a near rarity in rural areas, has capitalized upon this reality and has served to alleviate loneliness and isolation among many elderly. Programs of personal visiting, telephone reassurance, as well as senior volunteer programs have been used successfully to counteract loneliness at different need levels. Some have reported the chief service implications of some subgroups of older adults in situations of isolation and loneliness to be the need for kin surrogates, more personalized community services, and security escort service (Heisel & Moore, 1973). Arling (1976) suggested that religious organizations appear to serve as a family surrogate for many widows.

Health. Data from the present study indicate that the way in which older adults perceive their health has more relative importance to feelings of loneliness than physical mobility or the actual ability to have physical contact with the ervironment. Perceived poor health predisposes older adults to loneliness through social as well as emotional isolation. Preoccupation with health problems, either real or imagined, may isolate older adults through decreased interaction and communication with others. Health services that provide for preventive as well as corrective health measures can serve to improve overall health and morale by reducing apprehension and anxiety and thereby enhancing opportunities for social interaction. Comprehensive mobile health units for diagnosis and treatment are a necessity in rural areas due to the lack of local facilities and the equal lack of transportation. Specialized mobile dental units with provision for making and fitting dentures should be a part of the intervention scheme as well as programs designed to diagnose and treat the mentally ill. Expanded food programs in conjunction with rural school lunch programs can help alleviate loneliness by systematically bringing the older individual into a social setting and improving general physical and mental health through improved nutrition.

Transportation. Findings from the present study support the results of others regarding the importance of transportation to quality of life in the later years (Cutler, 1975; Glanturco, Ramm, & Erwin, 1974; Patton, 1975). The important relationship between financial status and car purchase and maintenance causes personal transportation to be prohibitive for many elderly and especially those living in rural areas where per capital income is generally lower. A general lack of public rural transportation further isolates many older adults. The inability to visit friends and relatives, to get to the

doctor and to the food store contribute to anxiety, boredom, and poor health which in turn contribute to feelings of loneliness. The rural aged generally need access to scattered shopping, social, recreational, financial and related services. As a result, their transportation requirements suggest the need for systems of transportation affording small-scaled barrier free vehicles. It is generally recognized that answers to the transportation problem must come from the combined efforts of state, local, and regional agencies (The National Council on the Aging, 1972).

Vision. Changes in activities of daily living and leisure pursuits that accompany poor vision contribute to considerable loneliness among the aged. Visual loss results in decreased mobility, poor orientation, and vulnerability to crime and danger. Families and others may resist interaction with the visually impaired because of appearances of disarrangement as a result of poor grooming. As a result, informed family members or Home Health Aids can be valuable resources for those with limited vision. Escort services, as well as special transportation services, can intervene to increase the mobility of the poor sighted.

When vision is impaired, activities such as reading and television can no longer serve the useful function of offsetting the effects of loneliness. Bookmobile service to rural areas can improve the quality of life for older adults through the provision of books and magazines in large print, talking books, films, maps, tapes, recordings, and pictures. Churches can provide similar services to the physically and visually impaired. Closed circuit television as a reading aid for low vision persons can also assist in more meaningful use of time.

Telephoning

A final discriminator of loneliness to be discussed here appears to be a manifestation rather than an antecedent of loneliness - frequency of telephoning. The frequent use of the telephone by the quite often lonely suggests a type of reaching out in an effort to circumvent feelings of loneliness. Butler (1975) pointed out the dual value of a telephone in later life - its services as a lifeline in time of an emergency as well as its reduction of the sense of isolation. The therapeutic value as well as the vital lifeline function of telephones disqualify them as a luxury. Costs associated with a phone, however, exclude many older adults from their purchase. Farberow & Moriwaki (1975) pointed out the value of the telephone in loneliness intervention. They recommended that telephone centers be established and identified as specifically for the aged with personnel trained in understanding and meeting the problems of the nonsuicidal older person with outreach programs that utilize older staff persons. In such cases, careful consideration should be given to the name of the center in order that a suicide prevention identity not become established and serve as a deterrent to its acceptance.

Programs of assistance for phone installation and maintenance would improve the quality as well as the length of life for many isolated adults. Efforts of loneliness intervention through the telephone, however, should be based on the knowledge that frequent telephoning may result in "dead-end" activity that only serves to use up a few minutes of time. As a result, the telephone appears to be only a partial solution to loneliness.

Problems Associated with Loneliness Intervention

Programs of loneliness intervention for any age group are vulnerable to at least two stumbling blocks. The first of these is the difficulty with

which individuals in our society identify with the lonely. This problem is created by a tendency to suppress our own former feelings of loneliness because of the anxiety aroused by them. Furthermore, our tendency to equate loneliness with deviant behavior causes us to look upon the lonely as justifiably lonely. Secondly, many lonely adults place the burden of effort upon others to relieve their loneliness. The emotional symptoms that frequently characterize the lonely such as fear, anger, self pity, envy, and distrust serve to alienate them from those who would intervene.

Although the results from this study showed that groups of older rural adults may be identified as high or low risks for loneliness with relative success, much remains to be known regarding the importance of the timing for intervention and the most effective forms that it should take. Other questions that remain unanswered relate to the long range effect of loneliness intervention upon the elderly and the role of the family and others in the intervention process.

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Table 1. Discriminant Functions According to Ability to Separate into Categories of Loneliness and Variance Explained

Discriminant Function	Relative Percentage	Canonical Correlation R_c	Variance Explained by Group Membership R_c^2
1	76.9	.45***	.20
2	23.1	.27**	.07

Note: N = 380

** $p < .01$; *** $p < .001$

Table 2. Percent of Adults Correctly Identified According to Group Membership

Group	Percent Classified Correctly		
	Group 0	Group 1	Group 2
	%	%	%
Quite often lonely (N=59)	61.0	25.4	13.6
Sometimes lonely (N=159)	25.8	43.4	30.8
Almost never lonely (N=162)	14.8	21.0	64.2

Note: Percent of "grouped" cases correctly classified, 55.0%.
Prior probability of correct classification, 33.3%.

Table 3. Summary Table for Discriminators of Loneliness According to Step Entered, Univariate F Ratio, and Change in Rao's V

Step	Variable	F Ratio (Univariate)	Change in Rao's V	Significance of Change
1	Never transportation problem vs. often	12.40	24.80	.00
2	Frequency of phoning	4.57	9.18	.01
3	Self-rated health	10.48	22.40	.00
4	Widowed vs. married	10.33	23.28	.00
5	Organizational activity	4.11	9.66	.01
6	Single vs. married	2.87	6.35	.04
7	Adequacy of eyesight	4.86	11.38	.00
8	Sex	2.29	5.37	.07
9	Physical mobility	1.60	3.55	.17
10	Divorced vs. married	1.32	3.00	.22
11	Confidant	1.63	3.66	.16
				[a]
.				
.				
.				
.				
18				
Overall $F = 5.32^{**}$ (22,734)				

[a] F insufficient to enter analysis beyond this step ($F < 1.0$)

** $p < .01$

Table 4. Standardized Discriminant Function Coefficients for Loneliness According to Function

Variable	Coefficients	
	Function 1	Function 2
Always transportation vs. never	-.22	.06
Single vs. married	.16	-.36
Widowed vs. married	.44	-.35
Divorced vs. married	.09	-.27
Confidant	-.08	-.33
Organizational activity	-.20	-.30
Frequency of phoning	.18	-.36
Physical mobility	-.09	.38
Self-rated health	-.40	-.09
Adequacy of eyesight	-.29	-.42
Sex	.19	-.26
Variance Explained by Group Membership	20.0%	7.0%

Table 5. Means for Three Categories of Loneliness According to Discriminant Function

Group	Function 1	Function 2
Quite often lonely	.74	.44
Sometimes lonely	.21	-.29
Almost never lonely	-.48	.12